

Appl. No. 10/517,322
Amendment dated: December 30, 2008
Reply to OA of: July 31, 2008

REMARKS

Applicants have amended the specification to cross-reference the provisional application identified in the Application Data Sheet (ADS) and as reflected on the Official Filing Receipt. Since this information has already been provided, the amendment is not the first submission of the priority based information and therefore there is no late fee for making such a submission at this stage in the prosecution.

Applicants have amended the claims to more particularly define the invention taking into consideration the outstanding Official Action. Claim 1 has been amended to remove the term "in addition to reacted end groups". Applicants have amended claim 8 to delete the term "if necessary" to better define the invention. Claim 7 has been canceled and claims 8-11 have been indicated to be withdrawn from the present application as being drawn to a non-elected invention. Applicants retain their right to rejoinder in the present application as claim 7 has been cancelled without prejudice or disclaimer. The claims do not lack unity of invention for the reasons already of record and for those set forth in this response. Should rejoinder not be granted in this application Applicants retain the right to file a further application at a later time.

The objection to claim 5 because of the informalities set forth on page 2 of the outstanding Official Action has been obviated in view of the amendments to the claim. Applicants have corrected the typographical error in accordance with the Examiner's request. Accordingly, it is most respectfully requested that this objection be withdrawn.

Applicants have added new claims 12 to 18 to the application which claims are based on the multiple dependent claims as originally filed and previously canceled to reduce the claim fees. Moreover, further specific aspects of the invention are further claimed as fully supported by the specification, see especially pages 5 and 6 thereof. Applicants most respectfully submit that all of the claims now present in the application are in full compliance with 35 USC 112 and are clearly patentable over the references of record.

Appl. No. 10/517,322
Amendment dated: December 30, 2008
Reply to OA of: July 31, 2008

Applicants acknowledge that the information disclosure statement filed on December 20, 2004 fails to comply with 37 CFR 1.98(a)(2) which requires a legible copy of each cited foreign patent document; each non-patented literature publication or that portion which caused it to be listed. Applicants submit concurrently herewith a copy of each cited foreign patent document and non-patent literature in the form of a Supplemental Information Disclosure Statement. Applicants submit that since these references were based upon the international search report and should have been provided by the Swedish Patent Office during the national stage processing, therefore the fee set forth in 37 C.F.R. §1.17(p) should be waived and that these references be considered. However, if there is a required fee, this fee may be charged to Deposit Account No. 02-0200.

Applicants note their copending application 10/517,320, which may be material to the prosecution of this application.

The rejection of claims 1-3, 5 and 6 under 35 U.S.C. 103(a) as being unpatentable over Miura et al. in view of Jacobs et al. further in view of Tao et al. has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the following comments.

The present invention provides a coated metal surface on a solid support, wherein the coating consists of a protein layer that is firmly attached to the metal surface, the protein layer being coupled to linker molecules that are bound to low molecular weight antigens, wherein the linker molecules contain between the functional groups, via which they are coupled to the protein layer respectively bound to the antigen, an aliphatic hydrocarbon chain of 1, 2, or 3 carbon atoms. The coated surface provided by the present invention is for use in a displacement reaction where the affinity of the antibody to the antigen that is bound on the coated surface has to be lower than the affinity to the antigen in the test solution. More than three carbon atoms in the aliphatic chain results in a stronger affinity between the antibody and the on the coating bound antigen, which does not promote a displacement reaction. The affinity of the antibody to the antigen bound on the coated surface has to be weaker than that to the

antigen in the test solution, otherwise a sufficient displacement of antibodies bound to antigens on the coated surface by antigens in the test solution will not take place, thus resulting in no detection/determination or very poor detection/determination of the antigens in the test solution.

a) Miura et al. as already pointed out earlier and the Examiner has admitted, does not disclose a linker with 1, 2 or 3 carbon atoms between the functional groups.

b) Jacobs et al. discloses a protein layer on a substrate surface and a linker with functional groups (NHS-Y-NHS), however, as also admitted by the Examiner there is no mention of what the length of Y is or for that matter if the Y is an aliphatic hydrocarbon chain at all. In addition, there is whatsoever no mention of the significance of the affinity between the antibodies, the antigens bound on the coated surface and the antigens in the test solution or displacement reactions. On the contrary, the impression that a skilled person in the art gets when reading the disclosure of Jacobs is that there it is implicitly indicated that the affinity of the antibody to the antigen bound on the protein layer has to be strong in order to achieve the desired test results.

c) Tao et al. does not mention anywhere implicit or explicit anything about either affinity relations/problems between the target analytes and the capture ligands or displacement reactions. Moreover, Tao et al. does not teach or suggest a coated metal surface according to the present invention where the coating consist of a protein layer firmly attached on a metal surface and the protein layer being coupled to linker molecules that are bound to low molecular weight antigens. None of the paragraphs in Tao to which the Examiner refers to in the Official action discloses or suggest such a surface. What can be readout in those paragraphs and in the rest of the document as well is, however, that the protein is used as a captured ligand that will capture (bind to) directly or indirectly the analyte target, thus the protein is a part of the binding pair (binding ligand respectively target analyte) that will enable detection of the target analyte, which is not the case according to present claim 1. The "capture ligand" on the coated surface of claim 1 is the low molecular antigen not the protein layer. The low molecular antigens bound on the coated surface as defined in claim 1 will bind to

Appl. No. 10/517,322
Amendment dated: December 30, 2008
Reply to OA of: July 31, 2008


antibodies with a specific affinity for these antigens and during a displacement reaction they will be displaced from the coated surface by the antigens in the test solution to which they have a higher affinity to and by measuring the weight loss from the coated surface the analyte in the test solution will be determined.

Accordingly, in view of the above stated it would not be obvious to a person skilled in the art at all to modify the teachings of Miura et al. in view of Jacobs et al. and further in view of Tao et al. in order to arrive at the invention defined in present claim 1 as there are no incentives or suggestions pointing in that direction in any of the mentioned documents. Thus, present claim 1 is considered to be patentable in view of the prior art. Claims 2-6 are patentable due to their dependency on independent claim 1. Accordingly, it is most respectfully requested that this rejection be withdrawn.

The rejection of claim 4 under 35 U.S.C. 103(a) as being unpatentable over Miura et al. in view of Jacobs et al. further in view of Tao et al., as applied to claim 1, further in view of Houser et al., has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the above comments. Accordingly, it is most respectfully requested that this rejection be withdrawn.

In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all the claims now present in the application are most respectfully requested.

Respectfully submitted,
BACON & THOMAS, PLLC

By: 
Richard E. Fichter
Registration No. 26,382

625 Slaters Lane, Fourth Floor
Alexandria, Virginia 22314
Phone: (703) 683-0500
Facsimile: (703) 683-1080
REF/cjw
A02.wpd
December 30, 2008